

Test&Motion
Application Module:
ME 3 –Tensile Test Cables

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1 Introduction

Dear customer, thank you for choosing a product of **DOLI Elektronik GmbH**. **Test&Motion** is a modern application for the operating systems Microsoft Windows XP/7/8/10®.

This manual does not deal with the **Test&Motion software** in general but with the application module Plastics Tensile Test ME 3 in particular. Hence, it is recommended to read the **Test&Motion** application manual in order to get familiar with the software. Please follow the demands and safety hints listed in the manual!

1.1 Symbols

The different symbols in this manual will allow you to find your way more easily.

Table 1: Symbols and their meanings.

Symbol	Meaning
	Safety Instructions: In order to avoid interruptions in the work flow as well as damages to man and machine, follow the safety instructions at all cost.
	Job/work instructions: Instructive part of the document with precise work instructions. Here you are asked to do something.
	Information: General information and descriptions of working procedures, etc.
	Note: Important note for the operation, the function or for the working procedures.
	Tip: Gives tips for easy handling of the Test&Motion Software , the EDCs or the testing instrument.

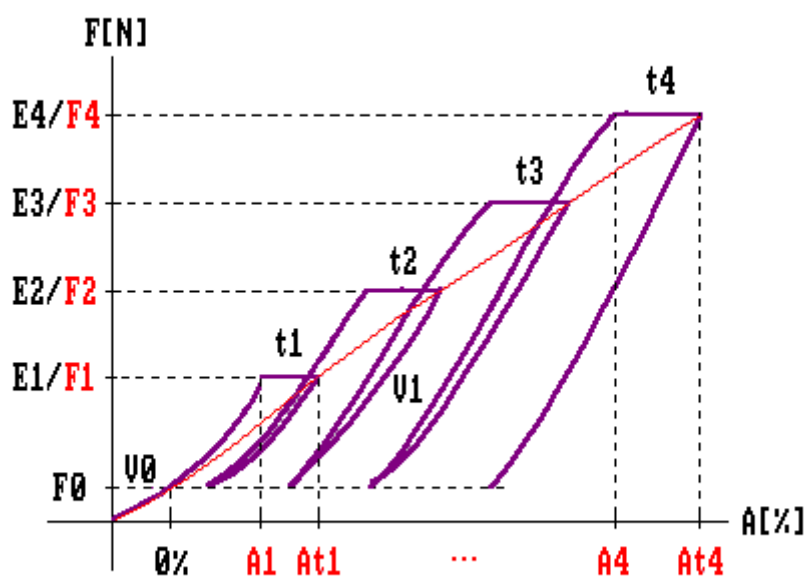


2 Application module ME 3: Tensile Test Cables

2.1 Field of application

Loading of cables by tension with selectable holding times and optional reload to F0. The force and strain of the cables during the holding is calculated for each holding cycle.

2.2 Test graphic ME 3





2.3 Input values ME 3



1. Click [Menu Test](#) → [Command Settings](#) → [Input values](#). Here you can find expedient input values for this test regulation, already. If necessary adjust the values to your needs.

Table 2: Input values for test ME 3.

Parameter	Meaning	Dimension / Selection possibilities
RTS	Expected value of rupture (rated tensile strenght)	[N], [N/mm ²]
E1	Test force loading 1	[%RTS], [N], [N/mm ²]
E2	Test force loading 2	Dimensions similar to E1
E3	Test force loading 3	Dimensions similar to E1
E4	Test force loading 4	Dimensions similar to E1
t1	Holding times in point E1	[s]
t2	Holding times in point E2	[s]
t3	Holding times in point E3	[s]
t4	Holding times in point E4	[s]
Cnt	A speed switch can be carried out either with a default acceleration or with a speed ramp.	[s]
Choice:	Number of step force	1 .. 4
Choice:	Reload to F0 after holding time ti, i = 1 .. 4	• Yes • No
Choice	Show polynom	• Yes • No
Choice	Test until sample break	• Yes • No
Choice	Correct strain (S4, S5)	• Yes • No



2.4 Results ME 3



1. Click [Menu Test](#) → [Command Settings](#) → [Results](#). Here you can already find expedient results. If necessary, adjust the values to your needs.

Table 3: Results for test ME 3.

Parameter	Meaning	Dimension
RTS	Input value RTS	[N], [N/mm ²]
A1	Strain before time t1	[%]
F1	Force before time t1	[N]
At1	Strain after time t1	[%]
A2	Strain before time t2	[%]
F2	Force before time t2	[N]
At2	Strain after time t2	[%]
A3	Strain before time t3	[%]
F3	Force before time t3	[N]
At3	Strain after time t3	[%]
A4	Strain before time t4	[%]
F4	Force before time t4	[N]
At4	Strain after time t4	[%]
PA0, PA1, PA2, PA3	Coefficients of the polynom	
Fh	Maximum force	[N]
Rh	Maximum stress	[N/mm ²]



2.5 Hints for the test ME 3

2.5.1 Pre-load F0

For the test control, the elongation and the strain will be set to zero when pre-load F0 is reached (see explanations about elongation and strain further down, also).

The measuring length then will be corrected to $L_0' = L_0 + dL(F_0)$

whereas

L_0' *corrected measuring length*

L_0 *measuring length*

$dL(F_0)$ *sample deformation at F0*

2.5.2 Enter the values for force steps E1, E2, E3 and E4

The meaning of the input values E1, ..., E4 are specified by the different units that can be selected.

- %RTS The force value is calculated from input value % of input value RTS.
- N, kN The force value is the input value.
- N/mm² The force value is input value multiplied by sample cross section.

2.5.3 Test end

- The test can be terminated after step force 1, 2, 3 or 4. To determine this you can enter input value 'Cnt' under "Test settings | Input values". In addition to that you can activate some other test end criterions. For reasons of safety you should use the end criteria "Crosshead path" or maximum test force

2.5.4 Storing of measured values (MVL)

Using periodic storing of measured values you can specify at which time-slot pattern the measured values are to be stored. The measuring system provides (depending on the type of measuring equipment) a set of measured values every 20 ms. For every quantity a maximum of up to 1.000.000 storage spaces is available. This amounts to a maximum test duration of 4 to 5 h, if every record is to be stored.

If you want to carry out tests lasting longer periods of time, you can store the measured values at larger periods, e.g. only every second or third record. This correspondingly prolongs the maximum possible test duration.

Using storage after measured value modification you can specify that a set of measured values is to be stored only if a measured value has changed by a certain amount. For this, press the button provided. This accesses further possibilities for entry as can be seen in the illustration. Activate the quantities required, enter the corresponding differences in measured values according to which in each case a set of measured values is to be stored.

You can also combine both storing options. However, one of the two options must always be activated.



